ENGINEERING THE RAILWAY

WHY BUILD A RAILWAY?

Transporting a sample of copper ore from Mt Lyell to Strahan using 60 horse teams and wagons over hilly terrain proved slow and arduous, convincing the Company that a railway was essential.

THE BEST ROUTE

Survey teams led by Engineer F A Cutten identified three feasible routes with the shortest via the King and Queen River valleys chosen in spite of its steep grades over the Rinadeena Saddle. Cutten proposed the Abt rack-rail system-cutting edge technology at the time-to negotiate the steep inclines.

CONSTRUCTION

Stage 1: 1894–1896 | Stage 2: 1898–1899

The contractor for the initial section made slow progress, experiencing low worker morale in the harsh working conditions.

Engineer E C Driffield was engaged to oversee the whole project and sped up the work by employing day labour teams based in camps along the route. Workers armed with hand tools and wheel barrows felled trees, excavated formations, and built embankments along with 48 bridges. The whole first stage from Teepookana to Queenstown was completed in 19 months; an exceptional engineering achievement.

The second stage from Regatta Point, Strahan to Teepookana was completed in 1899 with another 12 bridges including Iron Bridge over the King River.

Camp Spur on the banks of the King River. Abt locos were assembled here after parts were transported by barge from Strahan then trialled on a section of rack rail. Courtesy Tasmanian Archives & Heritage Office (TAHO)

RESTORING THE RAILWAY

The railway ceased operation in 1963 when road transport became a more economical option. Some 35 years later the railway was restored and now operates as a tourist heritage railway over the full 34.5 kilometres between Queenstown and Regatta Point.

In 2005, West Coast Wilderness Railway won the inaugural Engineering Heritage Colin Crisp Award in recognition of the restoration as “a major engineering project with clear attention to heritage and the environment”.

Restored locomotive descending on rack rail to Dubbil Barril over timber trestle bridge with view of King River gorge. Photo: West Coast Wilderness Railway

THE ABT LOCOMOTIVES

The five Abt locomotives had two sets of steam cylinders, one for normal rails and one for the central rack rail.

On the steep rack rail sections both sets operate together with the locomotive driver synchronising the drives on the approach to the rack section.

Two locomotives, Abt1 and Abt3 were refurbished in 2000, followed by Abt5 in 2005. All three locomotives operate on the railway today.

Launching the main span truss for the Iron Bridge from Teepookana side of the King River. Tests showed the bridge steel was weldable, assisting the restoration of the century-old bridge. Photo: TAHO

IRON BRIDGE AT TEEPOOKANA

Iron Bridge is the only remaining bridge of the original construction. The main span, a 43m, 110t Pratt truss manufactured in London, was shipped to Strahan then barged to Teepookana. The riveted truss resting on a barge was hauled across the river.

IMPORTANT ENGINEERS

Dr Carl Roman ABT (1859–1933) Studied mechanical engineering in Zurich. In 1882 he designed and patented a rack-rail system that was cheaper to manufacture and easier to maintain than earlier designs. The system was revolutionary and less than a decade old when Mount Lyell decided to use it.

Robert Carl STICHT (1856–1922) An American metallurgist and mining engineer, was engaged by Mount Lyell in 1893. He persuaded the Company to use pyritic smelting which he perfected. He held the position of General Manager for 27 years.

Frederick Alfred CUTTEN (1854–1931) | A New Zealand engineer, led the survey teams and proposed the Abt system for the railway. He rose to Engineer-in-Chief for the Company.

Edward Carus DRIFFIELD (1865–1945) | Was 27 years old when engaged to superintend the railway construction. He stayed with the Company for 30 years, rising to Superintending Engineer for Railways.

ENGINEERING HERITAGE INTERNATIONAL MARKER

ENGINEERS AUSTRALIA

Tasmanian Government

WILDERNESS WEST COAST RAILWAY TASMANIA

Engineering Heritage International Marker placed on 11 May 2016

Engineers Australia Tasmania Division

West Coast Wilderness Railway